
Module 6: Life Cycle Assessment

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Module 6: Life Cycle Assessment

- Educational goals and topics covered in the module
- Potential uses of the module in chemical engineering courses
- Student handouts
- Instructor materials and textbook
- Software
- Case studies

Module 6: Educational goals and topics covered in the module

Students will:

- become familiar with the concept of life cycle assessment
- perform a life cycle inventory and an impact assessment for drink delivery systems, and other familiar products such as grocery sacks, beverage containers and diapers
- be aware of the limitations of life cycle assessments

Module 6: Potential uses of the module in chemical engineering courses

- Mass and energy balances course: module on life cycle concepts
- Freshman level design course

Module 6: Student handouts

- CD on Life Cycle Assessment including tutorials, data sources and LCA design tool
- Problem 1: LCA of grocery sacks
- Problem 2: LCA of drink containers
- Problem 3: LCA of paper and plastic cups
- Problem 4: LCA of diapers
- Problem from CD: University beverage delivery system

Module 6: Instructor materials and textbook

- Solutions to problems 1-4
- Additional case studies including McDonald's sandwich packaging analysis (with video), use of life cycle concepts in strategic environmental planning, and electric vehicle battery case study
- Textbook chapter

LCA Software Demonstration

Module 6, Case studies 1-4

- Problem 1: LCA of grocery sacks
- Problem 2: LCA of drink containers
- Problem 3: LCA of paper and plastic cups
- Problem 4: LCA of diapers